

# Studies on the Mantodea of Nepal

(Insecta)

By Francesco Lombardo

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The author examines a rich collection of Mantodea from Nepal, belonging to the Zoologische Staatssammlung München. 20 species were identified, among which only 2 are known in the fauna of this region; almost all of them are new for the region of Nepal and *Sceptuchus baehri*, spec. nov., *Acromantis elegans*, spec. nov. and *Memantis anomala*, spec. nov. are new for the science.

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## Introduction

Dr. Baehr of the Zoologische Staatssammlung München, whom I sincerely thank, gave me the opportunity to examine a rich collection of Mantodea, picked by the researchers Dierl, Forster and Schacht during a biological expedition in Nepal in 1967.

It is a collection of 109 remarkably interesting specimens not only from a taxonomical view-point, as it is demonstrated that among the 20 species reported 3 are new for the science, but also from the faunistic one, since until today the Mantodea fauna of Nepal has been almost completely unknown. The only literature data existing pertain to a study written by Chopard and Dreux (1966) informing about the results of two biological expeditions (1959, 1962) in Nepal, where 3 species of Mantodea (*Rhombodera tectiformis* Sauss., *Leptomantis indica* G.-Tos, *Bolivaria xantoptera* (Oliver) were found.

## *Amorphoscelis annulicornis* Stål

*Amorphoscelis annulicornis* Stål, 1871, Ofv. Ak. Forh., 28 p. 401.

*A. annulicornis* Giglio-Tos 1927, Das Tierreich, p. 24.

*A. indica* Giglio-Tos, 1927, Das Tierreich, p. 23.

*Amorphoscelis indica* Werner 1931, Proc. Zool. Soc. 4 p. 1329.

*Amorphoscelis indica* Werner 1933, Proc. Zool. Soc., 4 p. 897.

*Amorphoscelis keiseri* Beier, 1956, Verh. Naturf. Ges. Basel, 67 (1) p. 33.

*Amorphoscelis annulicornis* Roy 1965, Bull. Soc. ent. France, 70 p. 269.

Material: Nepal: 2 ♂♂, Rapti Tal Monahari Kohla, Belwa 350 m, 6.V.1967, (leg. Dierl, Forster, Schacht).

## Description

These two specimens differ from the typical material as they have the last article of the cerci completely black, while the other articles are only distally black (Fig. 1a). Also in the copulatory organ there are some differences, which especially concern the shape of the ventral phallomere (Fig. 1b), which is almost rhomboid rather than subsquare as in the neallotype described by Roy (1965).

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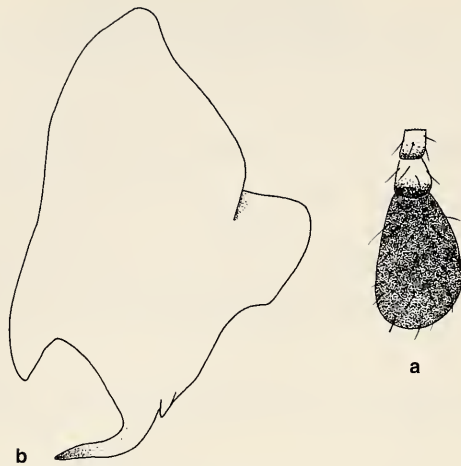


Fig. 1. *Amorphoscelis annulicornis*: a cercus; b ventral phallomere.

This species, among those well-known from the Indo-Cingalese area, is the most largely distributed, as it has been reported from all over India, Sri Lanka and now also from Nepal.

#### *Humbertiella ceylonica* Sauss.

*Humbertiella ceylonica* Saussure, 1869, Mt. Schweiz. ent. Ges., 3 p. 62.

*H. ceylonica* Giglio-Tos 1927, Das Tierreich, p. 64.

*Humbertiella ceylonica* Werner 1931, Proc. Zool. Soc. London, 4 p. 1329.

*Humbertiella ceylonica* Werner 1933, Proc. Zool. Soc. London, 4 p. 897.

Material: Nepal: 1 ♂ Rapti Tal Monahari, Belwa 350 m, 5.V.1967 (leg. Dierl, Forster, Schacht).

In India the genus *Humbertiella* is represented by 5 species (*H. ceylonica* Sauss., *H. indica* Sauss., *H. similis* G.-Tos, *H. nigrospina* Sjöst.) distinguished by rather evanescent characters, on the systematic value of which Werner (1933) had already raised doubts. For this reason and till a correct revision of the genus will be made it is difficult to have the reliability of a correct specific determination.

Therefore, in this doubt, I attribute the present specimen to *H. ceylonica*, to which it looks to better correspond.

The species is largely distributed in India, Burma and Assam.

#### *Didymocorypha lanceolata* (F.)

*Mantis lanceolata* Fabricius, 1798, Ent. syst., suppl., p. 191.

*D. lanceolata* Giglio-Tos 1927, Das Tierreich, p. 116.

*Didymocorypha lanceolata* Uvarov 1927, Spolia Zeylanaica, 14 p. 86.

*Didymocorypha lanceolata* Hanry 1932, Spolia Zeylanica, 17 p. 9.

*Didymocorypha lanceolata* Werner 1933, Proc. Zool. Soc. part 4 p. 898.

*Didymocorypha lanceolata* Mukherjee-Hazra 1985, Entom. 10 (4) p. 257.

Material: Nepal: 1 ♂, East Daula Ghat, 800-1.200 m 19.VII.1964 (leg. W. Dierl).

This genus is easily recognizable for the presence of two long and broad ocular processes, which render it similar to the genus *Pyrgomantis* Gerst., present only in the tropical Africa.

The species is largely distributed in India, from Himalaya to Sri Lanka.

*Eomantis guttatipennis* (Stål)

*T. guttatipennis* Stål, 1877, Bih. Svenska Ak. 4 (10) p. 51.

*E. guttatipennis* Giglio-Tos 1927, Das Tierreich, p. 141.

*Eomantis guttatipennis* Werner 1930, Proc. Zool. Soc. 3 p. 689.

*Eomantis guttatipennis* Werner 1933, Proc. Zool. Soc. 4 p. 899.

*Eomantis guttatipennis* Thinkham 1937, Lingnam Science Journ., 10 (3) p. 487.

Material: Nepal: 11 ♂♂, Rapti Tal Monahari Kohla, Belwa 350 m, 8.V.1967 (leg. Dierl, Forster, Schacht); 1 ♀, Kathmandu (Chauni 1.400 m), 23.IX.1967 (leg. Dierl, Schacht).

The specimens are enough corresponding to the original description. I found a certain variability only in the number of the spines on the external margins of the anterior tibiae; in fact, there are specimens either with 8 or with 9 spines; in a specimen there are 8 spines in the right tibia, while in the left one 9 spines may be counted.

The species has been reported from Himalaya and from the region of Tonchino and Tibet.

*Sceptuchus baehri*, spec. nov.

Types. Holotype: Nepal: 1 ♂, Rapti Tal Jhawani 200 m, 16.V.1967 (leg. Dierl, Forster, Schacht). - Paratype: Nepal: 1 ♂, Rapti Tal Monahari Khola, Belwa 350 m, 13.V.1967 (leg. Dierl, Forster, Schacht).

Description

♂. The head is about 2.5 times wider than high, with large globular eyes; the vertex is reddish with a dimple situated on the base of the ocelli; the fastigium of the vertex is straight, not longer than the imaginary line joining the eyes; the two justaoocular tubercles are truncated at their apexes and not greatly developed. The frontal shield is strongly transverse, about 5 times wider than high, with a well distinct upper margin, concave at the base of the antennae and largely rounded in the middle; the surface is strewed with long bristles. The clypeus is divided into an anticlypeus and a postclypeus by a prominent carina. The antennae are long and ciliated, with the scape green and the flagellum ochraceous.

The slender and ochre pronotum (Fig. 2a) is 1.33 times as long as the anterior coxae; the lateral margins are finely but distinctly toothed and each tooth has an apical bristle. The supracoxal dilatation is not well marked and has largely rounded lateral margins; the prozone, 0.47 times as long as the metazone, lacks the medial carina which is present, even though not well distinct, in the metazone.

The anterior legs are slender: the coxae, more or less cylindroid in shape, are green-ochraceous and exceed the posterior margin of the pronotum; the interior knee lobes are divergent. The femurs, brighter green than the coxae, are 0.83 times as long as the pronotum, with the maximum width situated at almost 1/3 of the base and with the upper margin slightly spined (visible only at a great magnification); they are externally armed with 4 long, greenish, apically dark spines; in the external surface a line of small tubercles parallel to the marginal spines is present. The discoidal spines are three, with the second spine longer than the others and with the tip slightly smoothed. The tibiae are a little shorter than the respective femurs; in the holotype the spines of the exterior margin are 8, whereas in the paratype they are 7. The metatarsi are longer than all the other articles taken together and their ratio is 1.38. The mid and hind legs are long and slender, rich in hair, especially the tibiae; the hind metatarsi are much longer than all the other articles taken together.

The flying organs are well developed, and largely exceeding the tip of the abdomen; both the tegminae and the wings are hyaline and green. The tegminae are little less than 3 times as long as the pronotum, their external margins are finely ciliated and their tips are finely rounded.

The abdomen is cylindrical, the supra-anal plate is triangular in shape and rounded apically; medially there is a carina semi-erased near the tip. The cerci are long and cylindrical, except the last article that is conical. The subgenital plate is furnished with two long styles.

The copulatory organ is weakly sclerified: the ventral phallomere (Fig. 2b) appears narrow and remarkably lengthened, with its right postero-lateral angle armed with a little shagreened process; also the distal process is shagreened and little developed. The phalloid apophysis of the left phallomere (Fig. 2c) is rather membranous, triangular in shape, apically rounded and posteriorly directed.

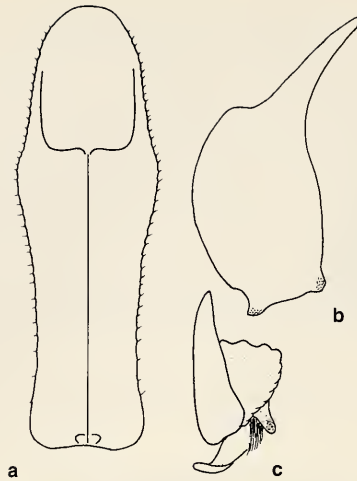


Fig. 2. *Sceptuchus baehri*, spec. nov. a pronotum; b ventral phallomere; c left phallomere.

Measurements. Length of pronotum 5.5 mm; length of prozone 1.8 mm; width of supra-coxal dilatation 1.5 mm; length of anterior coxae 4.2 mm; length of anterior femurs 4.7 mm; width of anterior femurs 1 mm; length of tegminae 16.2 mm.

This new species differs from *S. simplex* Hebard 1920 because of: pronotum distinctly longer than anterior coxae, with lateral margins toothed; large ocelli; posterior metatarsi more than 2.5 times as long as other articles taken together.

*S. simplex* was described on a male from Singapore, therefore the finding of a second species in a region so far considerably extends the areal of this genus, that, at the moment, has a separated "Indian-Malaysian" type distribution; but I do not exclude that more precise researches within this areal could increase the collection localities, perhaps with species different from those known up to now.

#### *Haldwania liliputana* Beier

*Haldwania liliputana* Beier, 1930, Ann. Mag. Nat. Hist. s. 10, 6: 441.

*Haldwania liliputana* Werner 1931, Proc. Zool. Soc. London, part 4; 1329.

Material: Nepal: 1 ♂, Rapti Tal Monahari Khola, Belwa 350 m, 5.V.1967 (leg. Dierl, Forster, Schacht).

The species has so far been known only from two stations of the Haldwania district (Beier 1930, Werner 1931) in north-western India.

#### *Leptomantella indica* (Giglio-Tos)

*Leptomantis indica* Giglio-Tos, 1912, Bull. Soc. ent. Ital. 46: 88.

*L. indica* Giglio-Tos 1927, Das Tierreich, p. 308.

*Leptomantis indica* Werner 1930, Proc. Zool. Soc. London, Part 3, 689.

*Leptomantis indica* Chopard, Dreux 1966, Ann. soc. ent. France s. II: 603.

Material: Nepal: 1 ♂, Chisapani Garhi (Prov. Chisapani Garhi) 1.600 m, 11.-15.VII.1967 (leg. Dierl, Schacht); 4 ♂♂, Kathmandu Valley Godavari 1.800 m 1.-7.VI.1967 (Dierl, Schacht).

In 1914, Giglio-Tos instituted the new genus *Leptomantis* for the species *Mantis (Thespis) albella* described by Burmeister (1838), but as this name had already been used by Peters in 1867 for a new genus of Amphibians, in 1940 Uvarov, in observance of the law of priority, proposed the new name "*Leptomantella*". However, this substitution passed unnoticed and the genus has continued to exist under

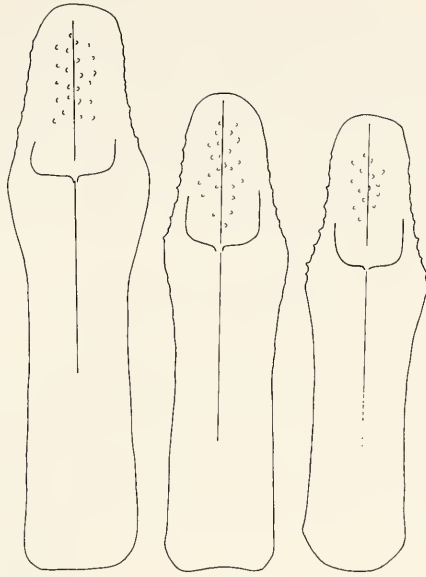


Fig. 3. Variability of pronotum of *Deiphobe prope incisa*.

the old name "*Leptomantis*" until today.

The species is already known for the region.

#### *Statilia maculata* (Thumb.)

*Mantis maculata* Thunberg, 1781, Nov. Insect. Spec., 3 p. 61.

*S. maculata* Giglio-Tos 1927, Das Tierreich, p. 441.

*Statilia maculata* Werner 1930, Arkiv for Zoologi, 21 (34) 4.

*Statilia maculata* Werner 1931, Proc. Zool. Soc. London, 4 p. 1933.

*Statilia maculata* Werner 1933a, Proc. Zool. Soc. London, 4 p. 899.

*Statilia maculata* Werner 1933b, Treubia, 14 p. 261.

*Statilia maculata* Mukherjee-Hazra 1985, Rec. zool. Surv. India, 82 (1-4) p. 35.

Material: Nepal: 1 ♂, Rapti Tal Jhawani 200 m, 17.V.1967 (leg. Dierl, Forster, Schacht).

This species is largely distributed all over Asia.

#### *Deiphobe prope incisa?* Werner

*Deiphobe incisa* Werner, 1933, Proc. Zool. Soc. London, Pt. IV: 900.

*Deiphobe incisa* Mukherjee-Hazra 1983, Rec. zool. Surv. India, 80 p. 461.

*Deiphobe prope incisa* Lombardo 1991, Atti Soc. Ital. Sci. Nat. Museo Civ. Storia Nat. Milano, 132 p. 379.

Material: Nepal: 1 ♂, 1 ♀, Chisipani Garhi 1.600 m, 11.-15.VII.1967 (leg. Dierl, Schacht); 4 ♂♂, Kathmandu Valley (Godavari, 1.600-1.800 m), 1.VI.1967 (Dierl, Schacht).

#### Description

The species, ascribed to the genus *Deiphobe*, are hardly separable from each other on the basis of the characters so far used in the systematics of this genus, as they are subject to a great variability, the interspecific limits of which are not yet known enough. These characters are: the presence or the absence

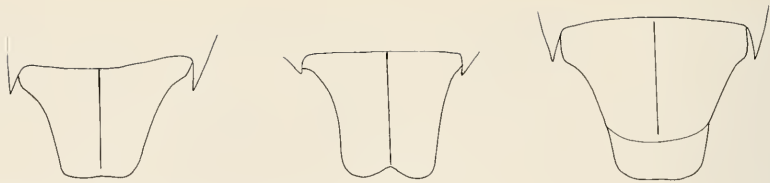


Fig. 4. Variability of supra-anal of *Deiphobe prope incisa*.

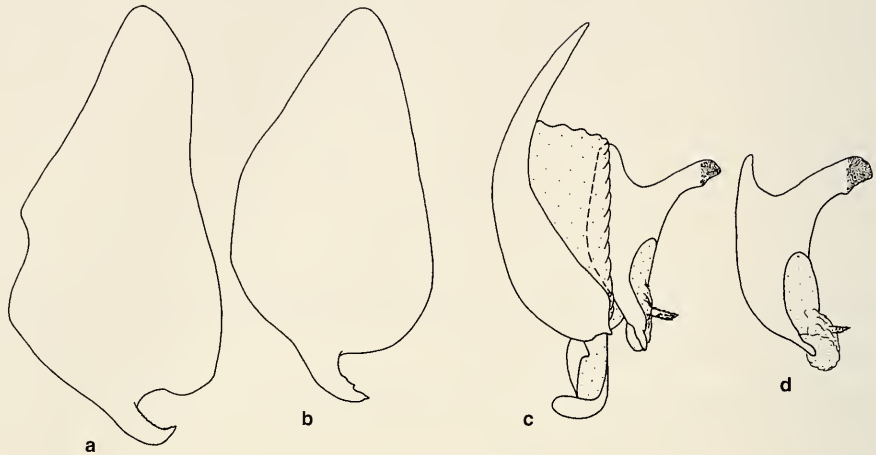


Fig. 5. *Deiphobe prope incisa*: a, b ventral phallomere; c left phallomere; d apophysis phalloides.

of an apical groove on the supra-anal plate, the ratio between the length of the anterior coxae and the metazone, the colour of the large internal spines of the anterior femurs.

The deriving perplexity is remarkably reflected on the description of its species; therefore, the reports of different species for the same territories give rise to the founded doubt that the determination of the studied material by several authors is not reliable. These doubts can be resolved only when a complete revision of the genus is made.

Therefore, waiting for this event, at the moment I attribute this material to *D. incisa* only because these specimens present the tip of the supra-anal plate more or less engraved, but I do not exclude that it might be a different species.

Among the specimens I have studied, I found a certain variability in the pronotum (Fig. 3), which can appear more or less slender in shape. Also the apical groove of the supra-anal plate (Fig. 4) must be valued with great attention, as it can appear more or less attenuated or it can be absent and, in the latter case, also the shape of the plate can slightly change.

I verified a further variability in the ratio between the length of the anterior coxae and the metazone; in fact, six specimens have the coxae slightly longer than the metazone, while in a specimen the metazone is longer than the anterior coxae.

Also the copulatory organ (Figs 5 a, b, c, d) shows a certain variability, especially in the distal process of the ventral phallomere (Figs 5 a, b), which can have the anterior margin minutely toothed or with few but strong teeth.

The species is new for Nepal.

### *Hierodula membranacea* (Burm.)

*Mantis* (*Hierodula*) *membranacea* Burmeister, 1838, Handb. Ent., 2 p. 536.

*Hierodula* (*H.*) *membranacea* Giglio-Tos 1927, Das Tierreich, p. 440.

*Hierodula membranacea* Tinkham 1937, Lingnan Sc. Journ. 1 (4) p. 559.

Material: Nepal: 1 ♂, Rapti Tal Monahari Khola, Belwa 350 m, 10.V.1967 (leg. Dierl, Forster, Schacht).

This species is characterized by a slender pronotum; until today it has been reported with certainty from India and China.

### *Hierodula tenuidentata* Sauss.

*Hierodula tenuidentata* Saussure, 1869, Essai Syst. Mant., p. 68.

*H. (H.) tenuidentata* Giglio-Tos 1927, Das Tierreich, p. 444.

*Hierodula tenuidentata* Uvarov 1938, Field Mus. Nat. Hist.-Zool. Chicago, 20 p. 442.

*Hierodula tenuidentata* Lindt 1961, Dokl. Akad. Nauk Tadzhik. SSR. v. 4 (4) p. 53-57.

Material: Nepal: 1 ♂; Kathmandu-Chauni 1.400 m, 11.VI.1967 (leg. Dierl, Schacht); 2 ♂♂, 2 ♀♀, Rapti Tal Monahari Khola, Belwa 350 m, 7.-11.V.1967 (leg. Dierl, Forster, Schacht).

#### Description

According to Giglio-Tos (1912) *H. tenuidentata* is very near *H. transcaucasica* Brunner, from which it would differ mainly in the larger size, in the posteriorly narrower metazone and above all in the colour of the spines on the anterior femurs. In my opinion, on the contrary, this latter species cannot be separated from *H. tenuidentata*, as the differences, to which Giglio-Tos refers, are perfectly included in the intraspecific variability of the latter. This opinion is supported by the fact that the sizes of the specimens I have examined are perfectly compatible with the two species. Also the colour of the big spines on the internal faces of the anterior femurs is meaningless, as among my five specimens both chromatic models mentioned by Giglio-Tos are present. Uvarov (1938) noticed this variability concluding that probably *H. transcaucasica* had to be considered a subspecies of *H. tenuidentata*.

### *Rhombodera woodmasoni* Werner

*Hierodula (Rhombodera) woodmasoni* Werner, 1931, Proc. Zool. Soc. London, 4 p. 1331 t. 1.

Material: Nepal: 3 ♂♂, 2 ♀♀, Rapti Tal Monahari Khola, Belwa 350 m, 7.V.1967 (leg. Dierl, Forster, Schacht).

This species was described by Werner (1931) on a female collected near Madras (India) and since then it has never more been found. In the material I examined, I found 3 ♂♂ and 2 ♀♀ attributable to this species, what allows me to give the description of the male for the first time.

#### Description.

♂. It is of medium dimensions and dark-brown. The head is wider than long, with large globular eyes; the fastigium of the vertex is slightly curved and situated over the imaginary line joining the eyes. The frontal shield is almost square with the upper margin curved and bearing medially a small but distinct tooth directed forward.

The pronotum is rhomboid (Fig. 6a), dark-brown and with toothed lateral margins; the ratio between the length of the metazone and the pronotum is on the average 1.54. The ochre prosternum presents a large transverse black band near the base of two small blackish dimples in the middle of the disc.

The fore-legs are strong; the coxae (Fig. 7a), prismatic in shape with a triangular section, are slightly curved, wider at the base and gradually narrowing toward the tip; they distinctly exceed the posterior margin of the pronotum. Of their three margins the posterior one is strongly spined. The external one is slightly spined and the anterior one is furnished with seven strong ivory tubercles. The internal face

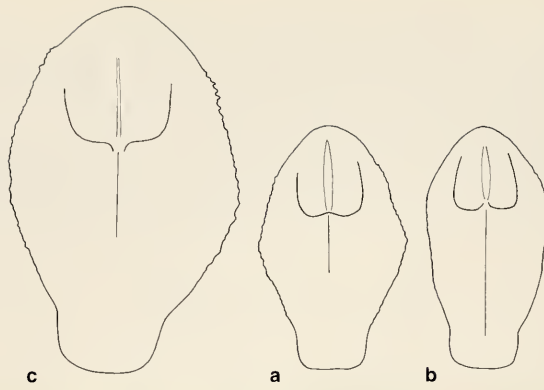


Fig. 6. Pronotum of: a *Rhombodera woodmasoni*; b *Rhombodera buthleri*; c *Rhombodera tectifomis*.

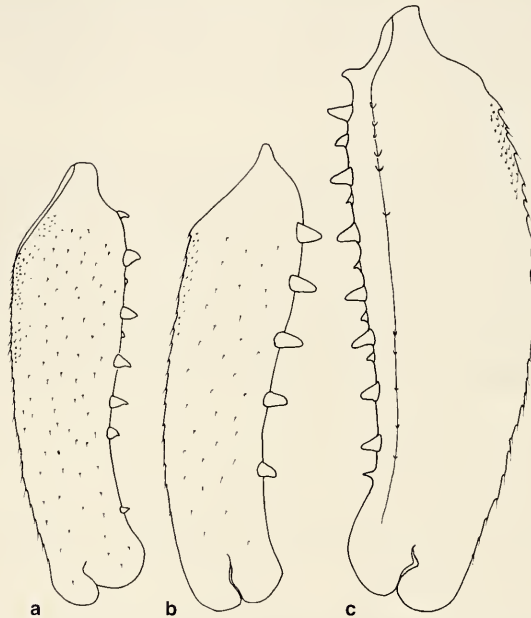


Fig. 7. Anterior coxae of: a *Rhombodera woodmasoni*; b *Rhombodera buthleri*; c *Rhombodera tectifomis*.

is strewed with very small spines more numerous at the base, growing thinner as they proceed toward the tip.

The femurs are on the average 0.87 times as long as the pronotum and they are more slender than the coxae. The external face is dark-brown and in two specimens it is trifasciated; the internal surface is dark with a large orange spot at the base of each spine; the biggest spines are black.

The tibiae are about 2/3 as long as the respective femurs, with 11 external ochre, apically dark spines and 13 internal brown, apically black spines.

The mid and hind legs are rich in hair, especially the tibiae, and their knee lobes are apically rounded.

The flying organs are well developed and exceed completely the tip of the abdomen. The tegminae are brown with a large stigma longer than wide, with brown margins at the anterior and posterior sides.

The bases of the abdominal sternites are black; the supra-anal plate is small and narrow, with the tip largely rounded, and it leaves a large part of the underlying subgenital plate uncovered. The cerci are long, formed by 19 articles all pubescent.

The copulatory organ presents the ventral phallomere (Fig. 8a) longer than wide, with the articulate



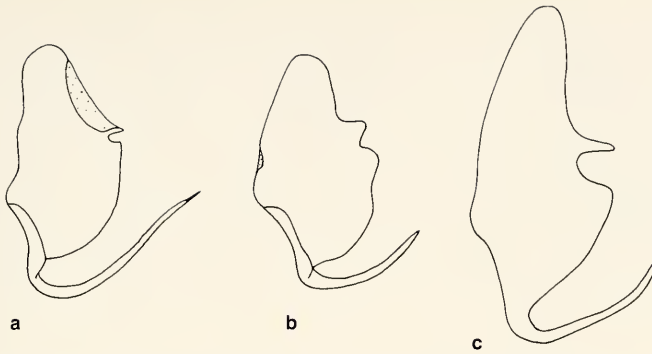


Fig. 8. Ventral phallomere of: a *Rhombodera woodmasoni*; b *Rhombodera butleri*; c *Rhombodera tectiformis*.

process well prominent and the distal process very long and sinuous. The phalloid apophysis of the left phallomere (Fig. 9a) is large, laminated with membranous lateral margins and with the anterior-lateral and posterior angles minutely spined.

Measurements. Width of the head 8.6-9.3 mm (8.95); length of the pronotum 14.7-17.2 mm (15.9); length of the metazone 9.5-11.2 mm (10.35); width the supra-coxal dilatation 9.5-9.7 mm (9.6); length of the anterior coxae 11.7-13.6 mm (12.55); length of the anterior femurs 12.7-15.2 mm (13.95); length of the tegminae 46-49 mm (47).

#### *Rhombodera butleri* Wood-Mason

*Hierodula (Rhombodera) butleri* W. Mason, 1878, Proc. Zool. Soc. London, p. 580 (Figs. 3, 3a, 3b).

*H. (Rhombodera) butleri* G.-Tos 1927, Das Tierreich 50, p. 453.

Material: Nepal: 3 ♂♂, Rapti Tal Monahari, Belwa 350 m, 11.V.1967 (leg. Dierl, Forster, Schacht).

#### Description

This species, as the previous one, has no more been reported since its establishment. It is well characterized by the almost parallel lateral margins of the pronotum metazone (Fig. 6b) and by having strong conical tubercles on the anterior coxae (Fig. 7b).

In two out of the three specimens examined, the external surfaces of the anterior femurs are trifasciated, while in the third one no band is evident.

The copulatory organ presents the ventral phallomere rhomboid (Fig. 8b), longer than wide with the distal process narrow, sinuous and shorter than that of the previous species. The phalloid apophysis of the left phallomere (Fig. 9b) is, also in this case, lamellar and nearly rectangular in shape.

This species, new for Nepal, is present only in the regions of Sikkim and Assam.

#### *Rhombodera tectiformis* Sauss.

*Hierodula tectiformis* Saussure, 1870, Bull. ent. suiss., 3 p. 232.

*H. (Rhombodera) butleri* G.-Tos 1927, Das Tierreich 50, p. 453.

Material: Nepal: 1 ♂, Pokhara 800 m, 7.V.1973 (leg. Dierl, Lehmmmon); 1 ♀, Rapti Tal Monahari Khola, Belwa 350 m, 5.V.1967 (leg. Dierl, Forster, Schacht).

#### Description

This species was already known for Nepal. It can be easily distinguished from the other species known for this region by its larger size, rhomboid pronotum (Fig. 6c), the anterior margin of the anterior coxae



Fig. 9. Left phallomere of: a *Rhombodera woodmasoni*; b *Rhombodera buthleri*; c *Rhombodera tectiformis*.

armed with numerous and large tubercle-like spines (Fig. 7c) and the presence of a reddish small spot at the base of each large spine on the internal faces of the anterior femurs.

Also the copulatory organ, as shown in Figs. 8 and 9, differs from that of the two other species.

#### *Heliomantis elegans* (Navas)

*Polyspilota elegans* Navas, 1904, Bol. Soc. Aragon., 3 p. 5-6.

*H. elegans* Giglio-Tos 1927, Das Tierreich, p. 522.

Material: Nepal: 1 ♂, Kathmandu Valley (Godavari) 1.600 - 1.800 m, 6.VI.1967 (leg. Dierl, Forster, Schacht).

The only specimen found corresponds perfectly to the original description.

The species was described from a locality of Himalaya, Kurseong, which, however, on the map is situated in the north-eastern India.

#### *Acromantis elegans*, spec. nov.

Types. Holotype: Nepal: 1 ♂, Prov. Chisipani Garhi Bhainse Dobhan 730 m, 16.-20.VII.1967 (leg. Dierl, Schacht). - Paratype: Nepal: 1 ♀, Rapti Tal Monahari Khola, Belwa 350 m, 10.V.1967 (leg. Dierl, Forster, Schacht).

#### Description

♀. The head is large, with globular eyes, prominent forward, the fastigium of the vertex is straight und

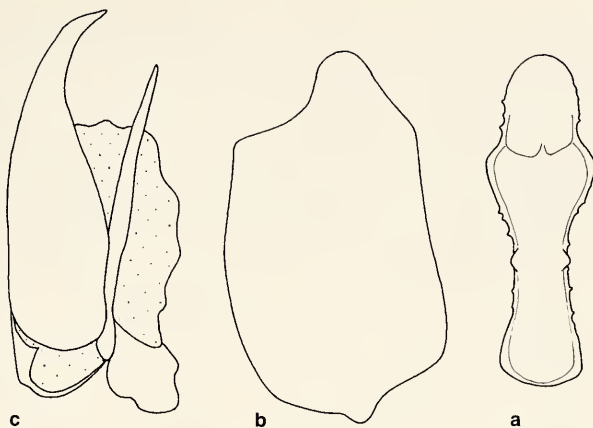


Fig. 10. *Acromantis elegans*, spec. nov. a pronotum; b ventral phallomere; c left phallomere.

lies on the imaginary line joining the tip of the eyes; the front is wide, and at the level of the temporal sutures there are two deep grooves. A small but well distinct tubercle, directed forwards, is present immediately over the base of the ocelli. The frontal shield is transverse, with its upper margin, under the base of the antennae, laterally concave, while its middle part projects forwards in a sharp tooth.

The pronotum (Fig. 10a) is slender, 1.45 times as long as the anterior coxae; the supra-coxal dilatation is well distinct, with rounded lateral margins; the metazone is 2.33 times as long as the prozone and at about half its lengths there are two small lateral gibbositities.

The anterior legs are slender: the anterior margins of the coxae are armed with 6-7 small tubercles, while the posterior ones are slightly spined; the internal knee lobes are divergent. The greenish femurs are wider at their base and for about half their length; then they gradually narrow; the four external spines are small and only apically black; the first two spines are slightly closer to each other; the large internal spine and the discoidal one are dark-brown.

Parallel and internal to the external margin there is a line of very small tubercles each bearing a long bristle on its tip.

The mid and hind legs are short and stocky, with a slight pubescence thicker than their tibiae; their femurs have a distal triangular lobe.

The abdomen is cylindrical, with segments wider than long; the supra-anal plate, wider than long, has a largely rounded tip; the cerci are short, pubescent, with cylindrical articles, except the last, which is conical.

The flying organs are well developed: the tegminae are greenish, with a sub-ialine marginal field and an ialine discoidal field; the oblique venation is strongly sinuous at the base; the apex is finely rounded.

The copulatory organ is weakly sclerified; the ventral phallomere (Fig. 10b) is longer than wide, with articular process slightly protuberant and the distal process little developed. The phalloid apophysis of the left phallomere (Fig. 10c) is stocky, posteriorly directed and strongly shagreened.

Measurements. Width of the head 4.3 mm; width of the supra-coxal dilatation 2.3 mm; length of the pronotum 7 mm; length of the metazone 4.9 mm; length of the anterior coxae 4.8 mm; length of the anterior femurs 5.8 mm.

♀. It is much alike the male, from which it differs only in the large size, in the upper margins of the anterior femurs slightly spined, in the large internal spines, which are apically ochraceous and black, in the base of nervatures, which is even more sinuous.

This new species is considered to belong to the group of species armed with a tubercle on the vertex, which includes *A. australis* Sauss., *A. oligoneura* (Haan), *A. insularis* G.-Tos, *A. gestri* G.-Tos, *A. dyaka* Heb., *A. montana* G.-Tos, *A. grandis* Beier. Because of the small size of the vertex tubercle it is near *A. montana*, from which it differs in having the prosternum ochraceous rather than black and in the less rounded lateral margins of the supra-coxal dilatation.

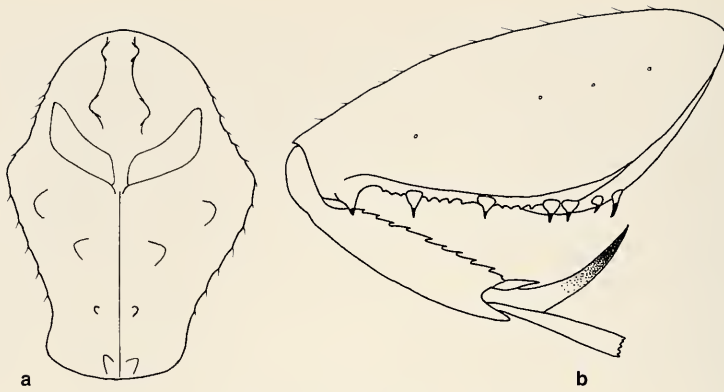


Fig. 11. *Memantis anomala*, spec. nov. a pronotum; b anterior femur and tibiae.

### *Ambivia popa* Stål

*Ambivia popa* Stål, 1877, Bih. Svenska Ak., 4 (10), p. 88.

*A. popa* Giglio-Tos 1927, Das Tierreich, p. 530.

*Ambivia popa* Uvarov 1927, Spolia Zeylanica, 14 (1), p. 90.

*Ambivia popa* Werner 1933, Proc. Zool. Soc. London, 4 p. 901.

*Ambivia popa* Beier 1956, Verh. Naturf. Ges. Basel, 67 (1) p. 40.

*Ambivia popa* Mukherjee-Hazra 1983, Rec. zool. Surv. India, 80 p. 464.

Material: Nepal: 5 ♂♂, 5 ♀♀, Rapti Tal Monahari, Belwa 350 m, 7.V.1967 (leg. Dierl, Forster, Schacht).

The areal of this species extends from India to Burma and Borneo.

### *Memantis anomala*, spec. nov.

Types. Holotype: Nepal: 1 ♂, Rapti Tal Monahari Khola, Belwa 350 m, 6.-12.V.1967 (leg. Dierl, Forster, Schacht). - Paratype: 10 ♂♂, same data.

#### Description.

♂. The head is broad, with globular eyes directed forward. The vertex is concave and a transverse carina separates it from the front; it is armed with an apically bipartite tubercle, which separates two dimples: the right one, narrow and deep, is situated near the ocular suture, while the left one is wider and less deep than the former. The fastigium of the vertex is well curved and lies over the imaginary line joining the tip of the eyes; the two juxta-ocular tubercles are well evident and apically rounded. The front presents two minute tubercles along the ocular suture. The occiput is armed with two small tubercles on its side. The frontal shield is transverse, on the average 2.6 times longer than high, with the upper margin concave at the base of the antennae and cut off at the tip; the disc is medially slightly depressed.

The pronotum (Fig. 11a) is short, rhomboid, with the lateral margin slightly spined; the supra-coxal dilatation is broad, on the average 0.72 times as long as the pronotum; its lateral margins are anteriorly slightly curved. The prozone is raised and anteriorly it shows two slight gibbositities on each side. The metazone is a little longer than the prozone; medially it presents a carina semi-erased posteriorly and, on its sides, 4 tubercle-like gibbositities emerge, the two anterior more developed than the posterior ones: two large tubercles are present on its posterior margin.

The anterior legs (Fig. 11b) are short and stocky: the coxae are on the average 1.08 times as long as the pronotum, prismatic in shape and with a triangular section; the three margins are slightly but distinctly spined, above all the anterior one; the internal knee lobes are divergent. The femurs are fairly well dilated, the ratio between their width and length is on the average 0.38; their upper margin is little curved and thinly spiny; among the four external spines there are numerous small spines all with dark-brown apices.

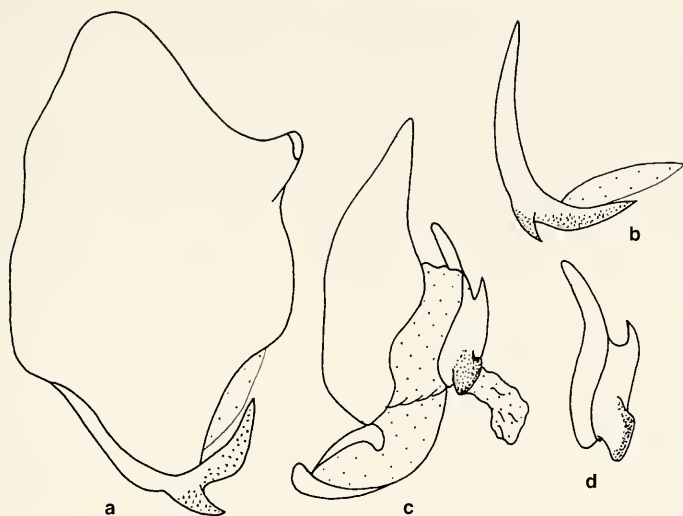


Fig. 12. *Memantis anomala*, spec. nov. a, b ventral phallomere; c, d left phallogomere.

The mid and hind legs are slender and slightly pubescent; the posterior metatarsi are as long as all the other articles taken together.

The abdomen is cylindrical, covered with hair; the supra-anal plate is transverse, triangular in shape and with a largely rounded apex; the cerci are short, formed with about 10 cylindrical articles, except the last one that is conical all covered with thick hair.

The tegminae are on the average 5.30 times as long as the pronotum, with the external margins ciliate and the tips slightly rounded. The discs of both the tegminae and the wings are covered with minute spines.

The copulatory organ has a ventral phallomere (Figs. 12a, 12b) longer than wide, with the distal process made of two branches, the smaller of which is directed posteriorly while the larger is directed upwards and laterally. The phallogomere of the left phallomere (Figs. 12c, 12d) is rectangular in shape with the posterior tip strongly shagreened.

Measurement. Width of the head 4.1-4.5 mm; length of the pronotum 3.8-4.5 mm; length of the metazone 2.1-2.6 mm; width of the supra-coxal dilatation 2.8-3.2 mm; length of the anterior coxae 4.2-4.8 mm; length of the anterior femurs 4.9-5.5 mm; width of the anterior femurs 1.9-2.1 mm; length of the tegminae 20-24 mm.

Until today, three species of this genus are known: *M. fuliginosa* (Thumb.), *M. gardneri* Werner and *M. minor* Werner. But the attribution of these two last species to the genus *Memantis* puts some questions, since it is not clear why Werner (1931), when he described *M. minor* spec. nov., referred to it twice in the same work as "very near the preceding species..." and "visible also in the preceding species..." that is *Cimantis fuliginosa* spec. nov. which, it is clear, does not belong to the genus *Memantis*. Therefore, we wonder whether *Memantis minor* really belongs to the genus *Memantis*.

As concerns the other species described also by Werner (1931), i.e. *Memantis gardneri*, spec. nov., it is evident from Werner's description that in this species the armature of the anterior femurs is completely anomalous for the genus, since the external margins of the anterior femurs are armed with five rather than with four spines, as it is a rule in the genus; also the number of the discoidal spines does not coincide, since they are three rather than four. Because of this dissimilarity of the characters I am of the opinion that this second species does not belong to the genus *Memantis*.

These two doubts can completely be solved when it will be possible to examine the types of the two species again.

*Memantis anomala*, spec. nov. differs from *M. fuliginosa* mostly in having the upper margins of the anterior femurs slightly curved, the pronotum more slender and the lateral margins of the prozone slightly curved.

*Hephestiasula pictipes* (W.-Mas.)

*Hestias pictipes* Wood-Mason, 1879, P. Asiat. Soc. Bengal, p. 258.

*E. pictipes* Giglio-Tos 1927, Das Tierreich, p. 547.

Material: Nepal: 12 ♂♂, Rapti Tal Monahari Khola, Belwa 350, 5.-12.V.1967 (leg. Dierl, Forster, Schacht).

The species is new for the fauna of Nepal.

*Creobroter apicalis* (Sauss.)

*Creobotra apicalis* Saussure, 1869, Mt. Schweiz. ent. Ges., v. 3 p. 73.

*C. apicalis* Giglio-Tos 1927, Das Tierreich, p. 558.

*Creobroter apicalis* Werner 1931, Proc. Zool. Soc. London 4: 1334.

*Creobroter apicalis* Mukherjee Hazra 1983, Rec. zool. Surv. India, 80: 460.

Material: Nepal: 17 ♂♂, 9 ♀♀, Rapti Tal Monahari Khola, Belwa 350 m, 12.V.1967 (leg. Dierl, Forster, Schacht).

This species is largely distributed all over India.

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